

WHAT IS CLAIMED IS:

1. A deflection yoke comprising:

a pair of saddle-type horizontal deflecting coils
located symmetrically with respect to a central axis
5 and having the shape of a truncated pyramid;

a magnetic core coaxial with the central axis,
located on an outer peripheral side of the horizontal
deflecting coils, and having the shape of a truncated
cone; and

10 a pair of vertical deflecting coils toroidally
wound around the magnetic core,

if the position of a horizontal axis perpendicular
to the central axis and the position of a vertical axis
perpendicular to the central axis and the horizontal
15 axis are given by 0° and 90° , respectively, in the
direction of the circumference of a circle around the
central axis, the winding of one of the vertical
deflecting coils having a starting point on the
horizontal-axis side within the range of $5^\circ - 30^\circ$ and
20 being distributed continuously or intermittently from
the starting point to 90° and wound symmetrically with
respect to the vertical axis, and the respective
windings of the one vertical deflecting coil and the
other vertical deflecting coil being wound
25 symmetrically with respect to a horizontal axis.

2. A deflection yoke according to claim 1,
wherein said one of the vertical deflecting coils has

a plurality of parts in which the winding distribution is close as the coil is wound and which are located near the ranges of $20^{\circ} - 40^{\circ}$ and $60^{\circ} - 80^{\circ}$ at the least.

5 3. A deflection yoke according to claim 1, wherein each of the horizontal deflecting coils has a large-diameter end and a small-diameter end, the small-diameter end having a bendless shape without any bends in a direction perpendicular to the central axis.

10 4. A deflection yoke according to claim 3, which further comprises a coma coil located coaxially with the central axis of the horizontal deflecting coils and at a distance from the small-diameter end of the horizontal deflecting coil in the direction of the
15 central axis, and wherein L_1 , L_2 and L_3 are set to have relations:

$$L_1 > L_2 > L_3,$$

$$L_3 = 0.6 \times L_2 - 0.8 \times L_2,$$

20 where L_1 is an effective length of the horizontal deflecting coil in the direction of the central axis, L_2 is the length of the core in the direction of the central axis, and L_3 is the distance between a small-diameter end of the core and the coma coil in the direction of the central axis.

25 5. A cathode ray tube apparatus comprising:
a vacuum envelope including a panel having
a phosphor screen formed on an inner surface thereof,

a funnel fixed to the panel, a cylindrical neck fixed to a small-diameter end of the funnel, and a yoke mounting portion substantially in the shape of a truncated pyramid and ranging from the neck to
5 an outer periphery of the funnel;

an electron gun which is located in the neck of the vacuum envelope and emits electron beams toward the phosphor screen; and

a deflection yoke which is mounted on the outside
10 of the yoke mounting portion and deflects the electron beams in horizontal and vertical directions,

the deflection yoke including a pair of saddle-type horizontal deflecting coils located symmetrically with respect to a central axis and having the shape of a truncated pyramid, a magnetic core coaxial with the
15 central axis, located on an outer peripheral side of the horizontal deflecting coils, and having the shape of a truncated cone, and a pair of vertical deflecting coils toroidally wound around the magnetic core,

20 if the position of a horizontal axis perpendicular to the central axis and the position of a vertical axis perpendicular to the central axis and the horizontal axis are given by 0° and 90° , respectively, in the direction of the circumference of a circle around the
25 central axis, the winding of one of the vertical deflecting coils having a starting point on the horizontal-axis side within the range of $5^\circ - 30^\circ$ and

being distributed continuously or intermittently from the starting point to 90° and wound symmetrically with respect to the vertical axis, and the respective windings of the one vertical deflecting coil and the other vertical deflecting coil being wound symmetrically with respect to a horizontal axis.

6. A cathode ray tube apparatus according to claim 5, wherein said one of the vertical deflecting coils has a plurality of parts in which the winding distribution is close as the coil is wound and which are located near the ranges of 20° - 40° and 60° - 80° at the least.

7. A cathode ray tube apparatus according to claim 5, wherein each of the horizontal deflecting coils has a large-diameter end and a small-diameter end, the small-diameter end having a bendless shape without any bends in a direction perpendicular to the central axis.

8. A cathode ray tube apparatus according to claim 7, which further comprises a coma coil located coaxially with the central axis of the horizontal deflecting coils and at a distance from the small-diameter end of the horizontal deflecting coil in the direction of the central axis, and wherein L1, L2 and L3 are set to have relations:

$$L1 > L2 > L3,$$

$$L3 = 0.6 \times L2 - 0.8 \times L2,$$

where L_1 is the effective length of the horizontal
deflecting coil in the direction of the central axis,
 L_2 is the length of the core in the direction of the
central axis, and L_3 is the distance between a small-
5 diameter end of the core and the coma coil in the
direction of the central axis.